

Claim Amendments

1. (currently amended) An apparatus for manufacturing an array of biopolymers on a support, said apparatus comprising:

(a) a manifold comprising at least two compartments, each of said compartments being in fluid communication with a respective gas inlet,

(b~~e~~) a perforated element in fluid communication with said manifold, said perforated element being substantially perpendicular to said gas inlets,

(c~~d~~) a chamber in fluid communication with said perforated element, said chamber comprising an opening in a wall thereof,

(d~~e~~) a device for dispensing reagents for synthesizing said an array of biopolymers biopolymer features on a support, at least a portion of said device being within said chamber, and

(e~~f~~) a mechanism for moving said support into and out of said chamber through said opening and for positioning said support relative to said device for dispensing reagents.

2. (original) An apparatus according to Claim 1 wherein said perforated element comprises about 5 to about 200 perforations per square inch.

3. (original) An apparatus according to Claim 1 wherein said perforated element is about 0.2 to about 2 inches thick and the diameter of each of said perforations is about 0.03 to about 0.25 inches.

4. (currently amended) An apparatus according to Claim 1 wherein said perforated element is 0.02 to about 0.2 inches thick and said apparatus comprises a honeycomb element in fluid communication with said perforated element ~~wherein the thickness of said honeycomb element is about 1 to about 1.5 inches and wherein the ratio of length of said honeycomb element to honeycomb features is at least about 7 to 1.~~

5. (original) An apparatus according to Claim 1 wherein said opening is in a wall of said chamber opposite to said perforated element.

6. (original) An apparatus according to Claim 5 wherein the walls of said chamber leading to said wall comprising said opening are tapered.

7. (currently amended) An apparatus according to Claim 1 wherein said device for dispensing reagents is a drop dispensing device and said mechanism of (e) is a mechanism for moving a support relative to said drop dispensing device are reagents for synthesizing an array of oligonucleotides on said support.

8. (original) An apparatus according to Claim 1 wherein said gas inlets are oriented with respect to said respective compartments of said manifold such that gas enters said respective compartments in a direction that is substantially normal to the direction in which gas exits said manifold.

9. (original) An apparatus according to Claim 1 wherein said manifold comprises at least four compartments.

10. (original) An apparatus according to Claim 1 wherein said chamber has vertical symmetry.

11. (original) An apparatus according to Claim 1 wherein the angles in the interior of said chamber are beveled.

12. (original) An apparatus according to Claim 1 further comprising a controller for controlling the movement of said mechanism for moving said support.

13. (original) An apparatus according to Claim 12 wherein said mechanism is a robotic arm.

14. (currently amended) An apparatus according to Claim 1 wherein said opening comprises a door ~~in a wall of said chamber~~ for ingress and egress of said support.

15. (currently amended) An apparatus according to Claim 14 wherein the dimensions of said door are sufficient to permit ingress and egress of said a mechanism for moving said holding a support ~~on which an array of biopolymer features is synthesized~~.

16. (currently amended) An apparatus according to Claim 14 wherein the dimensions of said door are sufficient to permit ingress and egress of said a device for dispensing reagents for ~~synthesizing an array of biopolymer features on a support.~~

17. (currently amended) An apparatus according to Claim 14 wherein said opening is ~~door is in a wall of said chamber~~ opposite to said perforated outlet element.

18. (original) An apparatus according to Claim 1 comprising at least four gas inlets.

19. (original) An apparatus according to Claim 18 wherein each of said gas inlets comprises a valve.

20. (currently amended) An apparatus according to Claim 18 wherein said gas inlets are ~~designed to introduce gas is introduced~~ into said manifold at a pressure of about 60 to about 80 psi.

21. (original) An apparatus according to Claim 1 wherein each compartment comprises one or more elements for diffusing said gas within said compartment.

Claims 22-39 (canceled).

40. (new) An apparatus according to Claim 1 wherein said device for dispensing reagents is a pulse jet device.

41. (new) An apparatus for manufacturing an array of biopolymers on a support, said apparatus comprising:

(a) a manifold comprising at least two compartments, each of said compartments being in fluid communication with a respective gas inlet, each gas inlet being in fluid communication with a gas inlet source that is oriented to provide gas in a direction that is substantially normal to the direction in which the gas flows through the gas inlets and enters said manifold,

(b) a perforated element in fluid communication with said manifold,

(c) a chamber in fluid communication with said perforated element, said chamber comprising an opening in a wall thereof,

(d) a device for dispensing reagents for synthesizing said array of biopolymers on a support, at least a portion of said device being within said chamber, and

(e) a mechanism for moving said support into and out of said chamber through said opening and for positioning said support relative to said device for dispensing reagents.

42. (new) An apparatus according to Claim 41 further comprising a honeycomb element in fluid communication with said perforated element.

43. (new) An apparatus according to Claim 41 wherein said opening is in a wall of said chamber opposite to said perforated element.

44. (new) An apparatus according to Claim 43 wherein the walls of said chamber leading to said wall comprising said opening are tapered.

45. (new) An apparatus according to Claim 41 wherein said device for dispensing reagents is a drop dispensing device.

46. (new) An apparatus according to Claim 41 wherein said device for dispensing reagents is a pulse jet device.

47. (new) An apparatus according to Claim 41 wherein the device for dispensing reagents comprises a plurality of dispensing nodules that protrude into said chamber.

48. (new) An apparatus according to Claim 41 wherein said chamber has vertical symmetry.

49. (new) An apparatus according to Claim 41 wherein the angles in the interior of said chamber are beveled.

50. (new) An apparatus according to Claim 41 further comprising a controller for controlling the movement of said mechanism for moving said support.

51. (new) An apparatus according to Claim 41 wherein said opening comprises a door for ingress and egress of said support.

52. (new) An apparatus according to Claim 51 wherein said opening is opposite to said perforated element.

53. (new) An apparatus according to Claim 41 wherein each compartment comprises one or more elements for diffusing said gas within said compartment.

54. (new) An apparatus for manufacturing an array of biopolymers on a support, said apparatus comprising:

(a) a manifold comprising at least two compartments, each of said compartments being in fluid communication with a respective gas inlet and each of said compartments comprising raised surfaces within the compartments,

(b) a perforated element in fluid communication with said manifold, said raised surfaces of each of said compartments being tapered outwardly from said respective gas inlet to an area adjacent said perforated element,

(c) a chamber in fluid communication with said perforated element, said chamber comprising an opening in a wall thereof,

(d) a device for dispensing reagents for synthesizing said array of biopolymers on a support, at least a portion of said device being within said chamber, and

(e) a mechanism for moving said support into and out of said chamber through said opening and for positioning said support relative to said device for dispensing reagents.

55. (new) An apparatus according to Claim 54 wherein each of said compartments has vertical symmetry.

56. (new) An apparatus according to Claim 54 further comprising a flow-straightening element in fluid communication with said perforated element.

57. (new) An apparatus according to Claim 54 wherein said device for dispensing reagents is a drop dispensing device.

58. (new) An apparatus according to Claim 54 wherein said device for dispensing reagents is a pulse jet device.

59. (new) An apparatus according to Claim 54 wherein the device for dispensing reagents comprises a plurality of dispensing nodules that protrude into said chamber.

60. (new) An apparatus according to Claim 54 further comprising a controller for controlling the movement of said mechanism for moving said support.

61. (new) An apparatus according to Claim 54 wherein said opening is opposite to said perforated element.

62. (new) An apparatus according to Claim 54 wherein said manifold comprises at least four compartments.